

WHAT IS CLAIMED IS:

1. An image pickup module comprising a semiconductor chip including a photosensor array and an optical element for guiding light to said
5 photosensor array, wherein said optical element includes a imaging unit, a light shielding layer, and adhesive formed in a position between said semiconductor chip and said optical element but excluding said light shielding layer in the incident
10 direction of light, and said optical element and said semiconductor chip are fixed through said adhesive.

2. An image pickup module according to claim 1, wherein said adhesive is seal-shaped adhesive or
15 ultraviolet hardening resin.

3. An image pickup module according to claim 1, wherein the adhesive formed on said semiconductor chip is provided, in a part of said adhesive, with an
20 aperture for dissipating the pressure inside said adhesive.

4. An image pickup module according to claim 1, wherein a spacer is mixed in said adhesive to form a
25 predetermined gap between said semiconductor chip and said optical element.

5. An image pickup module according to claim 1,
further comprising a light shielding plate for
preventing light entry.

5 6. An image pickup module according to claim 1,
wherein said optical element and said semiconductor
chip are adhered with mutual displacement in one
direction or two directions, and an electrode pad for
electrical connection with the exterior is formed in
10 an upward open position of said semiconductor chip.

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7. An image pickup module according to claim 1,
wherein said optical element is composed of an upper
substrate including said imaging unit and a lower
15 substrate including said light shielding plate.

8. An image pickup module according to claim 1,
wherein said optical element is stereoscopic optical
element including plural imaging units.

20 9. An image pickup module according to claim 1,
wherein said optical element includes a color filter
or an infrared cut-off filter.

25 10. A digital camera comprising an image pickup
module according to claim 1.

11. A method for producing an image pickup module provided with a semiconductor chip including a photosensor array and an optical element including an imaging unit and a light shielding layer, the method comprising a step of adhering an optical element assembly and a semiconductor wafer bearing plural photosensor arrays with adhesive formed in a position excluding said light shielding layer with respect to the incident direction of light, a step of hardening said adhesive, and a dicing step in a position other than said imaging unit.

12. A method for producing an image pickup module according to claim 11, wherein the step of adhering said optical element assembly and said semiconductor wafer with the adhesive includes a step adhering a lower substrate assembly constituting said optical element assembly and said semiconductor wafer with said adhesive, and a step of then adjoining an upper substrate assembly constituting said optical element and said lower substrate assembly.

13. A method for producing an image pickup module according to claim 11, wherein said dicing step is a step of dicing along an area excluding said adhesive, or an area where a surfacial resin portion on said optical element is formed thinner than in

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other portions, or a groove formed on the surface of said optical element.

14. An image pickup module comprising an
5 optical element provided on a semiconductor chip,
wherein said optical element includes a first lens
and a second lens, and said second lens is provided
corresponding to said first lens.

10 15. An image pickup module according to claim
14, wherein said second lens is a distributed
refractive index lens.

15 16. An image pickup module according to claim
14, wherein said optical element is constituted by
adjoining an upper substrate and a lower substrate,
and said first lens is formed in said upper substrate
while said second lens is formed in said lower
substrate.

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17. An image pickup module according to claim
14, wherein said first lens and said second lens are
adjusted coaxially.

25 18. An image pickup module according to claim
14, wherein said optical element is a stereoscopic
optical element including a first stereoscopic lens

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formed by plural said first lenses and a second stereoscopic lens formed by plural said second lenses.

19. An image pickup module according to claim
5 14, wherein said optical element includes a color filter or an infrared cut-off filter.

20. An image pickup module according to claim
10 14, wherein said optical element includes a light shielding diaphragm layer provided with an aperture corresponding to said first lens or said second lens, and said light shielding diaphragm layer is positioned between said first lens and said second lens.

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21. An image pickup module according to claim
14, wherein said semiconductor chip includes a microlens thereon.

20 22. A digital camera comprising an image pickup module according to claim 14.

23. An image pickup module comprising a semiconductor chip including a photosensor array and
25 an optical element for guiding light to said photosensor array, wherein said optical element includes a first lens and a second lens corresponding

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to said first lens, said module further comprises
adhesive formed between said semiconductor chip and
said optical element and excluding a light shielding
layer, and said optical element and said
5 semiconductor chip are fixed through said adhesive.

24. An image pickup module according to claim
23, wherein said second lens is a distributed
refractive index lens.

25. An image pickup module according to claim
23, wherein said optical element is a stereoscopic
optical element including four first stereoscopic
lenses and second stereoscopic lenses respectively
15 corresponding to said first stereoscopic lenses.

26. A digital camera comprising an image pickup
module according to claim 22.

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